**Online supplemental material**

Number of pages: 14

Number of Tables and Figures: 10 (10 Tables, 0 Figures)

Number of references: 65

**Data extraction**

**Table S1.** Variables on which we extracted data

|  |  |
| --- | --- |
| **Demographic characteristics** | Mean age in years at baseline and/or follow-up, gender/sex distribution, country in which the study was performed |
| **Clinical characteristics** | Method of diagnostic assessment, type of depressive disorder, prevalence of depression at baseline, prevalence of depression incidence during follow-up |
| **Methodological characteristics** | Method and validity of dietary Mg2+ intake assessment, method of Mg2+ measurements in blood/CSF/urine, specifications of blood/CSF draw or urine sampling for Mg2+ measurements (*e.g.,* fasting blood-draw), the duration of follow-up in number of moths, the covariates that were used in statistical analyses, the number of predictor categories, the number of outcome categories, the analytical strategy that was used, the participation rate, the percentage of withdrawal during follow-up.  |
| **Outcome data** | Raw numbers or effect-size estimates and the corresponding 95% confidence interval on the associations of interest  |

**Quality assessment of the included studies**

**Quality assessment of cross-sectional cohort studies**

The Newcastle-Ottawa Scale (NOS) cohort version (Wells *et al.,* 2016) was used to assess the methodological quality of the included cross-sectional studies on the association between dietary Mg2+ intake and the prevalence of mood disorders. The NOS is the recommended tool for this end according to the Cochrane collaboration (2016). **Table S2** provides the items that compose the NOS. **Table S3** provides the item and total scores per included study.

**Table S2.** Items that compose the NOS cohort version

|  |  |
| --- | --- |
| **Item** | **Points** |
|  | **Yes**  | **No**  | **Not known**  |
| **Selection** |  |  |  |
|  **1** Representativeness of the sample | **⊕** = representative (random)  | **⊗** = not representative (selected) |  **∅** = don’t know |
|   **2** Sample size | **⊕** = justified | **⊗** = not justified |  **∅** = don’t know |
|  **3** Non-respondents | **⊕** = comparable and high response rate | **⊗** = not comparable and low response rate |  **∅** = don’t know |
|   **4** Ascertainment of exposure  | **⊕** = validated  | **⊗** = not validated / no description |  **∅** = don’t know |
| **Comparability** |  |  |  |
|   **5** Comparability of subjects | **⊕** = comparable / controlled  | **⊗** = not comparable / not controlled |  **∅** = don’t know |
| **Outcome** |  |  |  |
|  **6** Assessment of outcome  | **⊕⊕** = independent/blind linkage; **⊕** = self-report | **⊗** = no description  |  **∅** = don’t know |
|  **7** Statistical test  | **⊕** = clearly described and appropriate  | **⊗** = not clearly described or appropriate |  **∅** = don’t know |

**⊕** = + 1 point; **⊗** = – 1 point; **∅** = 0 point

**Table S3.** Quality assessment of the included cohort studies on the association between dietary Mg2+ intake and the prevalence of mood disorders

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year**  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **Total** |
| **Dietary Mg2+ intake** |
| Sharkey (2003) | ⊗ | ⊗ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | 3 |
| Jacka *et al.* (2009) | ⊕ | ⊗ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | 5 |
| Bae & Kim (2012) | ⊗ | ⊗ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 2 |
| Derom *et al.* (2012) | ⊗ | ⊕ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 4 |
| Huang *et al.* (2012) | ⊗ | ⊗ | ∅ | ∅ | ⊕ | ⊕⊕ | ⊕ | 2 |
| Jacka *et al.* (2012) | ⊕ | ⊗ | ∅ | ⊕ | ⊕ | ⊕⊕ | ⊕ | 5 |
| Yary *et al.* (2013) | ⊗ | ⊗ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 2 |
| Kim *et al.* (2015) | ⊗ | ⊗ | ⊗ | ⊕ | ⊕ | ⊕ | ⊕ | 1 |
| Miki *et al.* (2015) | ⊗ | ⊗ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 2 |
| Tarleton and Littenberg (2015) | ⊕ | ⊕ | ⊗ | ⊗ | ⊕ | ⊕ | ⊗ | 1 |
| Martínez-Gonzalez & Sánchez-Villegas (2016) | ⊗ | ⊗ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 2 |
| Rubio-López *et al.* (2016) | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | 5 |
| Miyake *et al*. (2017) | ⊗ | ⊗ | ⊗ | ⊕ | ⊕ | ⊕ | ⊕ | 1 |

**Quality assessment of prospective cohort studies**

The prospective cohort studies on the relation between dietary Mg2+ intake and the incidence of mood disorders were assessed regarding their methodological quality by using the method proposed by Lievense *et al.* (2002). **Table S4** provides a detailed overview of this quality assessment tool. **Table S5** provides the item and total scores per included study.

**Table S4.** Items that compose the quality assessment tool for tool prospective cohort studies proposed by Lievense *et al.* (2002)

|  |  |
| --- | --- |
| **Item** | **Points** |
|  | **Yes** | **No** | **Not known** |
| **Study population** |  |  |  |
|  **1** Selection at uniform point  | **⊕**  | **⊗** |  **∅** |
|   **2** Participation rate > 80% | **⊕** | **⊗** |  **∅** |
| **Assessment of risk factor** |  |  |  |
|   **3** Exposure assessment blinded | **⊕** | **⊗** |  **∅** |
|   **4** Exposure assessed according to validated measures | **⊕** | **⊗**  |  **∅**  |
| **Assessment of outcome** |  |  |  |
|  **5** Outcome assessed identically in studied population  | **⊕** | **⊗**  |  **∅**  |
|  **6** Outcome reproducibly | **⊕** | **⊗**  |  **∅**  |
|  **7a** Outcome assessed according to validated measures  | **⊕** | **⊗**  |  **∅**  |
|  **7b** Outcome assessed using interview/diagnosis | **⊕** | **⊗** | **∅**  |
| **Study design** |  |  |  |
|  **8** Follow-up time > 96 months **1** | **⊕**  | **⊗** |  **∅**  |
|  **9** Withdrawals < 20% | **⊕**  | **⊗** |  **∅**  |
| **Analysis and data presentation** |  |  |  |
|  **10** Appropriate analysis techniques used | **⊕**  | **⊗** |  **∅**  |
|  **11a** Adjusted for at least age and sex  | **⊕**  | **⊗** |  **∅**  |
|  **11b** Adjusted for socioeconomic status | **⊕**  | **⊗** | **∅**  |
|  **11c** Adjusted for baseline depression (severity) | **⊕**  | **⊗** | **∅**  |

**1** Points were awarded when an individual study had an above average duration of follow-up

**⊕** = + 1 point; **⊗** = – 1 point; **∅** = 0 points

**Table S5.** Quality assessment of the included prospective cohort studies on the association between dietary Mg2+ intake and the incidence of mood disorders

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Population | Exposure | Outcome | Study design | Data analysis |  |
| **Author, year**  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | Total |
| Derom *et al.* (2012) | **⊕** | **⊕** | **⊕** | **⊕** | **⊕** | **⊕** | **⊕** | **⊗** | **⊕** | **⊕** | **⊕⊕** | 11 |
| Yari *et al.* (2016) | **⊕** | **⊕** | **⊕** | **∅** | **⊕** | **⊕⊕** | **⊕⊕** | **⊕** | **⊕** | **⊕** | **⊕⊕⊕** | 14 |

**⊕** = + 1 point; **⊗** = – 1 point; **∅** = 0 points

**Quality assessment of case-control studies**

The NOS case-control version (Wells *et al.,* 2016) was used to assess the methodological quality of the included cross-sectional studies on the association between abnormalities in Mg2+ levels in blood components/bodily fluids as a function of mood disorder status. **Table S6** presents this quality assessment tool. **Table S5** provides the item and total scores per included study.

**Table S6.** Items that compose the NOS case-control version

|  |  |
| --- | --- |
| **Item** | **Points** |
|  | **Yes**  | **No**  | **Not known**  |
| **Selection** | **⊕** = + 1 point | **⊗** = – 1 point | **∅** = 0 points |
|  **1** Case definition | **⊕** = adequate | **⊗** = not adequate (selected) |  **∅** = don’t know |
|   **2** Representativeness of the case | **⊕** = representative | **⊗** = not representative |  **∅** = don’t know |
|  **3** Selection of controls | **⊕** = community  | **⊗** = hospital *etcetera* |  **∅** = don’t know |
|   **4** Definition of controls | **⊕** = no history of disease  | **⊗** = history of disease |  **∅** = don’t know |
| **Comparability** |  |  |  |
|   **5** Comparability of subjects | **⊕** = comparable / controlled  | **⊗** = not comparable / not controlled |  **∅** = don’t know |
| **Exposure** |  |  |  |
|  **6** Ascertainment of exposure  | **⊕⊕** = secured record or structured interview | **⊗** = no secured record or structured interview |  **∅** = don’t know |
|  **7** Same method of ascertainment of exposure for cases and controls | **⊕** = yes | **⊗** = no |  **∅** = don’t know |
|  **8** Non-response rate | **⊕** = same rate for both groups | **⊗** = not the same rate for both groups |  **∅** = don’t know |

**Table S7.** Quality assessment of the included case-control studies on abnormalities in Mg2+ levels in blood components, CSF, and urine as a function of mood disorder status

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author, year**  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **Total** |
| Nielsen (1964) | ⊗ | ∅ | ⊗ | ∅ | ∅ | ⊕ | ⊕ | ∅ | 0 |
| Bjørum (1972) | ⊕ | ∅ |  ⊗ | ⊗ | ∅ | ∅ | ⊕ | ∅ | -1 |
| Bjørum *et al.* (1972) | ⊕ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ∅ | 2 |
| Naylor *et al.* (1972) | ⊕ | ∅ | ∅ | ∅ | ⊗ | ∅ | ⊕ | ∅ | 0 |
| Herzberg & Herzberg (1977) | ⊕ | ∅ | ∅ | ∅ | ⊗ | ⊕ | ⊕ | ∅ | 2 |
| Ramsey *et al.* (1979) | ∅ | ∅ | ∅ | ∅ | ⊗ | ∅ | ⊕ | ∅ | 0 |
| Sengupta *et al.* (1980) | ⊕ | ∅ | ⊗ | ⊕ | ∅ | ⊕ | ⊕ | ∅ | 3 |
| Frazer *et al.* (1983) | ⊕ | ∅ | ⊕ | ⊗ | ⊕ | ⊕ | ⊕ | ∅ | 4 |
| Thakar *et al.* (1985) | ⊕ | ∅ | ⊗ | ⊕ | ∅ | ⊕ | ⊕ | ∅ | 3 |
| Alexander *et al.* (1986) | ⊕ | ∅ | ⊗ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | 3 |
| Banki *et al.* (1986) | ⊕ | ⊗ | ∅ | ∅ | ⊗ | ⊕ | ∅ | ∅ | 0 |
| Linder *et al.* (1989) | ⊕ | ∅ |  ⊗ | ⊗ | ∅ | ⊗ | ⊕ | ∅ | -1 |
| Kirov *et al.* (1990) | ⊕ | ∅ | ∅ | ∅ | ⊗ | ⊕ | ⊕ | ∅ | 2 |
| Widmer *et al.* (1992) | ⊕ | ∅ | ∅ | ∅ | ⊗ | ∅ | ⊕ | ∅ | 1 |
| Young *et al.* (1996) | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ⊕ | ∅ | 3 |
| Kamei *et al.* (1998) | ⊕ | ∅ | ∅ | ∅ | ⊗ |  ⊕ | ⊕ | ∅ | 2 |
| Levine *et al.* (1999) | ∅ | ∅ | ⊗ | ⊕ | ⊗ | ∅ | ⊕ | ∅ | 0 |
| Zieba *et al.* (2000) | ⊕ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | 4 |
| Imada *et al.* (2002) | ⊕ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | 4 |
| Daina *et al.* (2006) | ⊕ | ⊗ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ∅ | 5 |
| Barragan-Rodrìguez *et al.* (2007) |  ∅ | ⊗ | ⊕ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | 4 |
| Iosifescu *et al.* (2008) | ⊕ | ⊗ | ⊕ | ⊗ | ⊕ | ⊕ | ⊕ | ∅ | 3 |
| Nechifor (2008) | ⊕ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | 1 |
| Camardese *et al.* (2012) | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ∅ | ∅ | 4 |
| Huang *et al.* (2012) | ⊕ | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ∅ | 5 |
| Cubala *et al.* (2013) | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | ∅ | 5 |
| Siwek *et al.* (2015) | ⊕ | ∅ | ∅ | ⊕ | ∅ | ⊕ | ⊕ | ∅ | 4 |
| Rajizadeh et al. (2015) | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ∅ | ∅ | 4 |
| Styczeń *et al.* (2015) | ⊕ | ∅ | ∅ | ⊕ | ∅ | ⊕ | ⊕ | ∅ | 4 |
| Gu *et al.* (2016) | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ∅ | 7 |
| Szkup *et al.* (2017) | ⊕ | ⊗ | ∅ | ⊗ | ⊕ | ⊕ | ⊕ | ∅ | 2 |

**⊕** = + 1 point; **⊗** = – 1 point; **∅** = 0 points

**Quality assessment of controlled intervention studies**

Methodological quality of treatment trials was assessed by means of the method of evaluation of [randomized] trials provided by the U.S. Department of Health and Human services (2016). **Table S8** provides the necessary details on this tool. **Table S9** lists item- and total scores for each of the included treatment trials.

**Table S8** Items that compose the tool to assess the methodological quality of treatment trials

|  |  |
| --- | --- |
| **Item** | **Points** |
|  | Yes | No | Not known / N.A. |
|  **1** Was the study described as an RCT? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|   **2** Was the method of randomization adequate? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|   **3** Was the treatment allocation concealed? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|   **4** Were study participants and providers blinded to treatment group assignment? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **5** Were the people assessing the outcomes blinded to the participants' group assignments? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **6** Were the groups similar at baseline on important characteristics that could affect outcomes? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **7** Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **8** Was the differential drop-out rate at endpoint < 15%? | **⊕** = 1 | **⊗** = -1 | **∅** = 0 |
|  **9** Was there high adherence to the intervention protocols for each treatment group? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **10** Were other interventions avoided or similar in the groups? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **11** Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **12** Did the authors report that the sample size was sufficiently large to be able to detect a difference between group with ≥ 80% power? | **⊕** = 1 | **⊗** = -1 |  **∅** = 0 |
|  **13** Were outcomes reported or subgroups analyzed pre-specified? | **⊕** = 1 | **⊗** = -1 | **∅** = 0 |
| **14** Were all randomized participants analyzed in the group to which they were originally assigned (*i.e.,* intention-to-treat analysis)? | **⊕** = 1 | **⊗** = -1 | **∅** = 0 |

*Abbreviations*: N.A., Not Applicable.

**Table S9** Quality assessment of the included treatment trials

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Author, year  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Total |
| Malleson *et al.* (1968) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 3 |
| Bjørum (1972) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 4 |
| Bjørum *et al.* (1972) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 4 |
| Naylor *et al.* (1972) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 3 |
| Ramsey *et al.* (1979) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊗ | ∅ | 0 |
| Sengupta *et al.* (1980) | ∅ | ∅ | ∅ | ∅ | ∅ |  ⊗ | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 3 |
| Stryzewski *et al.* (1980) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ∅ | ∅ | ⊕ | ⊗ | ⊗ | ∅ | 0 |
| Linder *et al.* (1989) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 4 |
| Kirov *et al.* (1990) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 1 |
| Widmer *et al.* (1992) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ∅ | ∅ | ∅ | ⊕ | ⊗ | ⊗ | ∅ | 0 |
| Young *et al.* (1996) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 1 |
| Kamei *et al.* (1998) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ∅ | ⊕ | ⊗ | ⊗ | ∅ | 2 |
| Barragan-Rodrìguez et al. (2008) | ⊕ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ⊕ | ⊗ | ⊕ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | 9 |
| Nechifor (2008) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊗ | ⊗ | ⊗ | ∅ | -3 |
| Camardese *et al.* (2012) | ∅ | ∅ | ∅ | ∅ | ⊕ | ∅ | ⊕ | ∅ | ∅ | ⊕ | ⊕ | ⊗ | ⊕ | ∅ | 3 |
| Büttner *et al.* (2015) | ∅ | ∅ | ∅ | ∅ | ∅ | ∅ | ⊗ | ∅ | ∅ | ∅ | ⊕ | ⊗ | ⊕ | ∅ | 0 |
| Fard *et al.* (2016) | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | ∅ | ⊕ | ⊕ | ⊕ | ⊕ | ⊕ | 13 |

⊕ = + 1 point; ⊗ = – 1 point; ∅ = 0 point

**Quality assessment: agreement among raters.**

The overall agreement with regard to quality assessment was significant and sufficient (Kappa [κ] = 0.75 (SE = 0.14) [~83% agreement] *P* <. 0001).

|  |
| --- |
| **Table S10.** Basic characteristics of the included cross-sectional and prospective studies on Mg2+ dietary intake and the prevalence / incidence of mood disorders (**Panel A**), Mg2+ blood/CSF/urine levels in mood disorders (**Panel B**), and changes in Mg2+ blood/CSF/urine levels over the course of treatment (**Panel C**).  |
| **Panel A: Mg2+ dietary intake and the prevalence and incidence of mood disorders** |
| Author, year | Diagnosis; tool | Dietary assessment  | Prevalence of outcome  | Outcome incidence | Follow-up |
| Jacka *et al.* (2009) | Depression; HADS-D S-R | FFQ | *n* = 517 (9.1%) | N.A. | N.A. |
| Derom *et al.* (2012) | MDD diagnosis/Ad S-R | FFQ | *n* = 1,615 (12.5%) | *n* = 737 (5.7%) | 76 months |
| Huang *et al.* (2012) | MDD; DSM-IV | 24 hr recall | *n* = 63 (30.0%) | N.A. | N.A. |
| Jacka *et al.* (2012) | MDD; DSM-IV-TR | FFQ | *n* = 60 (5.9%) | N.A. | N.A. |
| Yary *et al.* (2013) | Depression; CES-D S-R | FFQ | *n* = 122 (30.3%) | N.A. | N.A. |
| Miki *et al.* (2015) | Depression; CES-D S-R | Diet history | *n* = 557 (27.8%) | N.A. | N.A. |
| Tarleton and Littenberg (2015) | Depression; PHQ S-R | 24 hr recall | *n* = 2,063 (23.2%) | N.A. | N.A. |
| Rubio-López *et al.* (2016) | Depression; CES-DC S-R | Parental food record | *n* = 147 (21.1%) | N.A. | N.A. |
| Yari *et al.* (2016) | MDD; registers | 4-day food record | *n* = 287 (11.0%) | *n* = 62 (2.7%) | 256 months |
| **Panel B: Blood, CSF, and urinary Mg2+ levels** |
| Author, year | Diagnosis; tool | Mg2+ levels in: | Mg2+ measurement method | Mg2+ measurement conditions |
| Nielsen (1964) | BD; N.K. | Erythrocytes, serum | Photometric determination | Not specified |
| Malleson *et al.* (1968) | MDD; N.K. | Plasma, ionized plasma | Fluorimetric determination | Not specified |
| Bjørum (1972) | MDD; N.K. | Whole blood | AAS | Not specified |
| Bjørum *et al.* (1972) | MDD; N.K. | Urine | AAS | Not specified |
| Naylor *et al.* (1972) | BD; ICD | Erythrocytes, plasma | AAS | Fasting state |
| Herzberg & Herzberg (1977) | Depression; N.K. | Serum | AAS | Non fasting state |
| Ramsey *et al.* (1979) | BD, MDD; Feighner  | Erythrocytes, plasma | AAS | Not specified |
| Sengupta *et al.* (1980) | BD, MDD, N.K. | ATPase | Biuret reaction | Fasting state |
| Stryzewski *et al.* (1980) | BD, MDD, N.K. | Erythrocytes, plasma | Spectometric determination | Not specified |
| Frazer *et al.* (1983) | BD, MDD; RDC | Plasma | Not specified | Not specified |
| Thakar *et al.* (1985) | BD, MDD, SADS | ATPase | Method of Lowry | Not specified |
| Alexander *et al.* (1986) | BD; ICD-9 | ATPase | Method of Lowry | Early morning |
| Linder *et al.* (1989) | MDD, RDC | Plasma, serum | AAS | Not specified |
| Kirov *et al.* (1990) | Manic, MDD; ICD-9 | Plasma | AAS | Early morning, fasting state |
| Widmer *et al.* (1992) | BD, MDD, DSM-III-R  | Erythrocytes, plasma | AAS | Not specified |
| Young *et al.* (1996) | BD, MDD, RDC  | Serum | Not specified | Not specified |
| Kamei *et al.* (1998) | MDD; DSM-III-R | Erythrocytes | AAS | Early morning |
| Levine *et al.* (1999) | MDD; DSM-III-R | CSF, serum | Colorimetric determination | Early morning |
| Zieba *et al.* (2000) | MDD; DSM-IV | Serum | AAS | Early morning |
| Imada *et al.* (2002) | BD; MDD; DSM-IV | Serum | Photometric determination | Not specified |
| Daina *et al.* (2006) | MDD; DSM-IV | Serum | Not specified | Not specified |
| Barragan-Rodrìguez *et al.* (2007) | Depression; Yesavage S-R | Serum | Not specified | Fasting state |
| Huang *et al.* (2012) | MDD; DSM-IV | Serum | Methylthymol blue method | Not specified |
| Cubala *et al.* (2013) | MDD; DSM-IV | Plasma | FAS | Early morning |
| Misztak *et al.* (2015) | BD; DSM-IV | Serum | FAS | Not specified |
| Styczeń *et al.* (2015) | MDD; DSM-IV | Serum | FAS | Not specified |
| Gu *et al.* (2016) | MDD; DSM-IV | Serum | Colorimetric determination | Not specified |
| **Panel C: Changes in Mg2+ blood/CSF/urine levels over the course of antidepressant/lithium treatment** |
|  | Diagnosis; tool | Mg2+ levels in | Treatment type | Treatment duration |
| Malleson *et al.* (1968) | MDD; N.K. | Plasma, ionized plasma | ECT | 1 session |
| Bjørum (1972) | MDD; N.K. | Whole blood | ECT | 1 session, 1 to 2 weeks |
| Bjørum *et al.* (1972) | MDD; N.K. | Urine | ECT | Not specified |
| Naylor *et al.* (1972) | BD; ICD | Erythrocytes, plasma | Ad or lithium | Not specified |
| Ramsey *et al.* (1974) | BD, MDD; Feighner  | Plasma | Lithium | Not specified |
| Stryzewski *et al.* (1980) | BD, MDD, N.K. | Erythrocytes, plasma | Ad | 2 weeks |
| Linder *et al.* (1989) | S-R ; CPRS | Plasma, serum | Ad and lithium | 2 to 4 weeks |
| Kirov *et al.* (1990) | Manic, MDD; ICD-9 | Plasma | Ad or lithium | 1 to 4 weeks |
| Widmer *et al.* (1992) | BD, MDD, DSM-III-R  | Erythrocytes, plasma | Ad or lithium | 12 weeks |
| Kamei *et al.* (1998) | MDD; DSM-III-R | Erythrocytes | Ad or lithium | 2 weeks to 12 months |

*Abbreviations.* AAS, Atomic Absorption Spectrophotometry; Ad, Antidepressant; ATPase, Adenosine triphosphatase; BD, Bipolar Disorder; CPRS, Comprehensive Psychopathological Rating Scale; DSM, Diagnostic and Statistical Manual of Mental Disorders; ECT, Electric Convulsive Therapy; EPDS, Edinburgh Postnatal Depression Scale; FAS, Flame absorption spectrophotometry; ICD, International Classification of Diseases; MDD, Major Depressive Disorder; N.A., Not Applicable; RDC, PPD, Post-Partum Depression; rem, remitted; Research Diagnostic Criteria; SADS, Schedule of Affective Disorders; S-R, Self-Reported

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